

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Previously Presented) A filter system comprising:
 - a guide tip having a proximal portion and a distal portion, the guide tip defining a guidewire lumen therethrough adapted to receive and slidably pass a guidewire;
 - an elongated wire having a proximal end and a distal end, the distal end of said elongated wire attached to the proximal portion of said guide tip at a point of attachment;
 - an embolic protection filter disposed along the elongated wire;
 - an elongated tubular member extending distally to a distal end defining a distal sheath, the elongated tubular member defining a first lumen, having a proximal and a distal end, adapted to receive the elongated wire and a second, generally parallel lumen having proximal and distal ports, adapted to receive the guidewire; wherein, when the guidewire is present in use, the embolic protection filter is collapsible at least in part within the distal sheath, further wherein, when the embolic protection filter is collapsed in part within the distal sheath, a portion of the guidewire within the second lumen of the elongated tubular member adjacent the distal port of the second lumen is generally coplanar with a portion of the guidewire within the guidewire lumen of the guide tip, a portion of the elongated wire within the first lumen of the elongated tubular member adjacent the distal end of the first lumen, and the point of attachment of the elongated wire to the guide tip.
2. (Original) The filter system of claim 1, wherein the guide tip has a tapered profile.
3. (Original) The filter system of claim 1, wherein the proximal portion of said guide tip has a larger profile than the distal portion of said guide tip.

4. (Original) The filter system of claim 1, wherein the guide tip includes a radiopaque marker band.

5. (Original) The filter system of claim 1, wherein the guide tip includes a spring coil.

6. (Original) The filter system of claim 5, wherein the spring coil includes a radiopaque material.

7. (Original) The filter system of claim 1, wherein the distal portion of said guide tip is atraumatic.

8. (Original) The filter system of claim 1, wherein the guidewire lumen of said guide tip is substantially straight.

9. (Original) The filter system of claim 1, wherein the guidewire lumen of said guide tip includes a curved portion.

10. (Original) The filter system of claim 1, wherein the proximal portion of said guide tip includes a tapered hole, and wherein the distal end of said elongated wire is attached to the guide tip at said tapered hole.

11. (Original) The filter system of claim 1, wherein the proximal portion of said guide tip includes a joint, and wherein the distal end of said filter wire is attached to the guide tip at said joint.

12. (Original) The filter system of claim 11, wherein the distal end of said elongated wire includes attachment means configured to provide an interference fit with the joint on the proximal portion of said guide tip.

13. (Original) The filter system of claim 12, wherein said attachment means is a coil disposed about the distal end of said elongated wire.

14. (Original) The filter system of claim 1, wherein the embolic protection filter is adapted to self-deploy when removed from the distal sheath.

15. (Original) The filter system of claim 1, wherein the embolic protection filter comprises a filter membrane operatively coupled to a support hoop and suspension arm, the support hoop forming a mouth for filtering embolic debris within a vessel.

16. (Original) The filter system of claim 15, further comprising a radiopaque coil disposed about the support hoop.

17. (Original) The filter system of claim 1, wherein the embolic protection filter and guide tip are coupled to a frame.

18. (Original) The filter system of claim 17, wherein the frame includes a port and an inner lumen configured to slidably receive the guidewire.

19. (Original) The filter system of claim 17, wherein the frame includes a coil.

20. (Original) The filter system of claim 17, wherein the frame includes a slotted tube.

21. (Original) The filter system of claim 20, wherein the slotted tube includes one or more sections having differing flexibility characteristics.

22. (Original) The filter system of claim 1, wherein the proximal portion of said guide tip is configured to slide at least in part within the distal sheath.

23. (Original) The filter system of claim 1, wherein the distal sheath includes one or more skived regions.

24. (Original) The filter system of claim 23, wherein said one or more skived regions are interposed between one or more collars.

25. (Original) The filter system of claim 1, further comprising a loading tool.

26. (Previously Presented) The filter system of claim 1, wherein the first lumen of said tubular member includes an end for insertion of the elongated wire, and wherein the second lumen of said tubular member includes a port for insertion of the guidewire.

27. (Previously Presented) The filter system of claim 26, wherein the end and port terminate at the distal end.

28. (Previously Presented) The filter system of claim 26, wherein the port is located proximal the end.

29. (Canceled)

30. (Canceled)

31. (Original) The filter system of claim 1, further comprising alignment means for radially aligning the guidewire lumen of said guide tip with the second lumen of said elongated tubular member.

32. (Original) The filter system of claim 31, wherein said alignment means comprises a key disposed within the distal sheath adapted to slide within a corresponding groove formed on the proximal portion of said guide tip.

33. (Original) The filter system of claim 1, further comprising a multiple-lumen retrieval sheath.

34. (Original) The filter system of claim 33, wherein the multiple-lumen retrieval sheath includes a first lumen adapted to receive the elongated wire, embolic protection filter, and the proximal portion of the guide tip, and a second lumen adapted to receive a second guidewire.

35. (Original) The filter system of claim 34, further comprising a longitudinal slit extending along at least a portion of the second lumen.

36. (Original) The filter system of claim 33, wherein the multiple-lumen retrieval sheath is configured for single operator exchange in the body.

37. (Previously Presented) A filter system, comprising:

a guide tip having a proximal portion and a distal portion, the guide tip defining a guidewire lumen therethrough, said lumen having a proximal port and a distal port adapted to receive and slidably pass a guidewire;

an elongated wire having a proximal end and a distal end, the distal end of said elongated wire attached to the proximal portion of said guide tip at a point of attachment;

an embolic protection filter disposed along the elongated wire;

an elongated tubular member extending distally to a distal end, the elongated tubular member defining a first lumen, having a proximal and distal end, adapted to receive the elongated wire, and a second lumen, having a proximal and a distal port, adapted to receive the guidewire; wherein, when the guidewire is present in use, the embolic protection filter is collapsible at least in part within the distal end of the elongated tubular member, further wherein, when the embolic protection filter is collapsed in part within the distal sheath, a portion of the guidewire within the second lumen of the elongated tubular member adjacent the distal port of the second lumen is generally coplanar with a portion of the guidewire within the guidewire lumen of the guide tip, a portion of the elongated wire within the first lumen of the elongated tubular member adjacent the distal

end of the first lumen, and the point of attachment of the elongated wire to the guide tip;
and

a multiple-lumen retrieval sheath adapted to receive a second guidewire.

38-43. (Canceled)

44. (Previously Presented) The filter system of claim 1, wherein the guide tip guidewire lumen has a proximal opening that is distal of the distal end of the elongated wire.

45. (Previously Presented) The filter system of claim 1, wherein the proximal portion of the guide tip has an elongate axis and wherein the distal portion of the guide tip has an elongate axis, wherein the proximal portion elongate axis is parallel to and offset from the distal portion elongate axis.

46. (Previously Presented) The filter system of claim 45 wherein the guidewire lumen has a proximal end that is distal of the proximal portion of the guide tip.